



Late effects of breast cancer treatment and potentials for rehabilitation.

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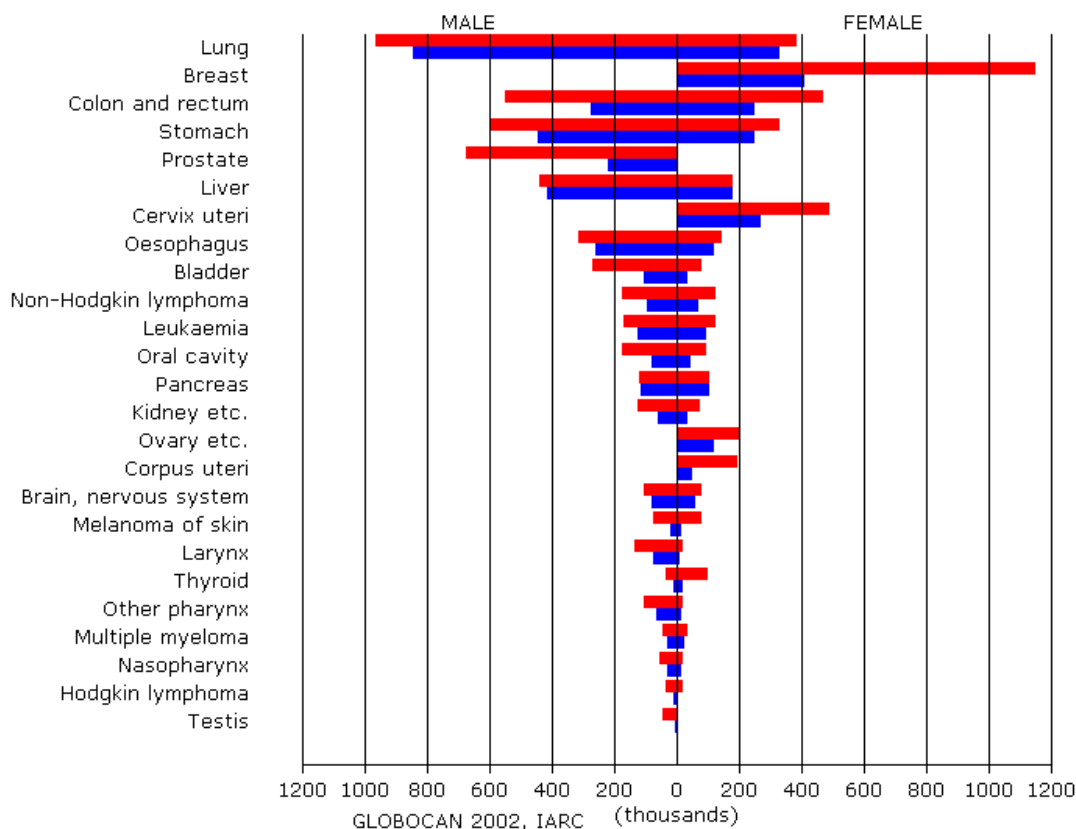
University of Southern Denmark





Breast cancer is the most frequent cancer among females in the world

World
Number of cases (all ages)



New cases:

1.15 mio

Deaths:

410.712

5-year prevalence:

4.4 mio

■ Cases
■ Deaths

GLOBOCAN 2002, IARC (thousands)



Treatment of early breast cancer

■ *Local therapies:*

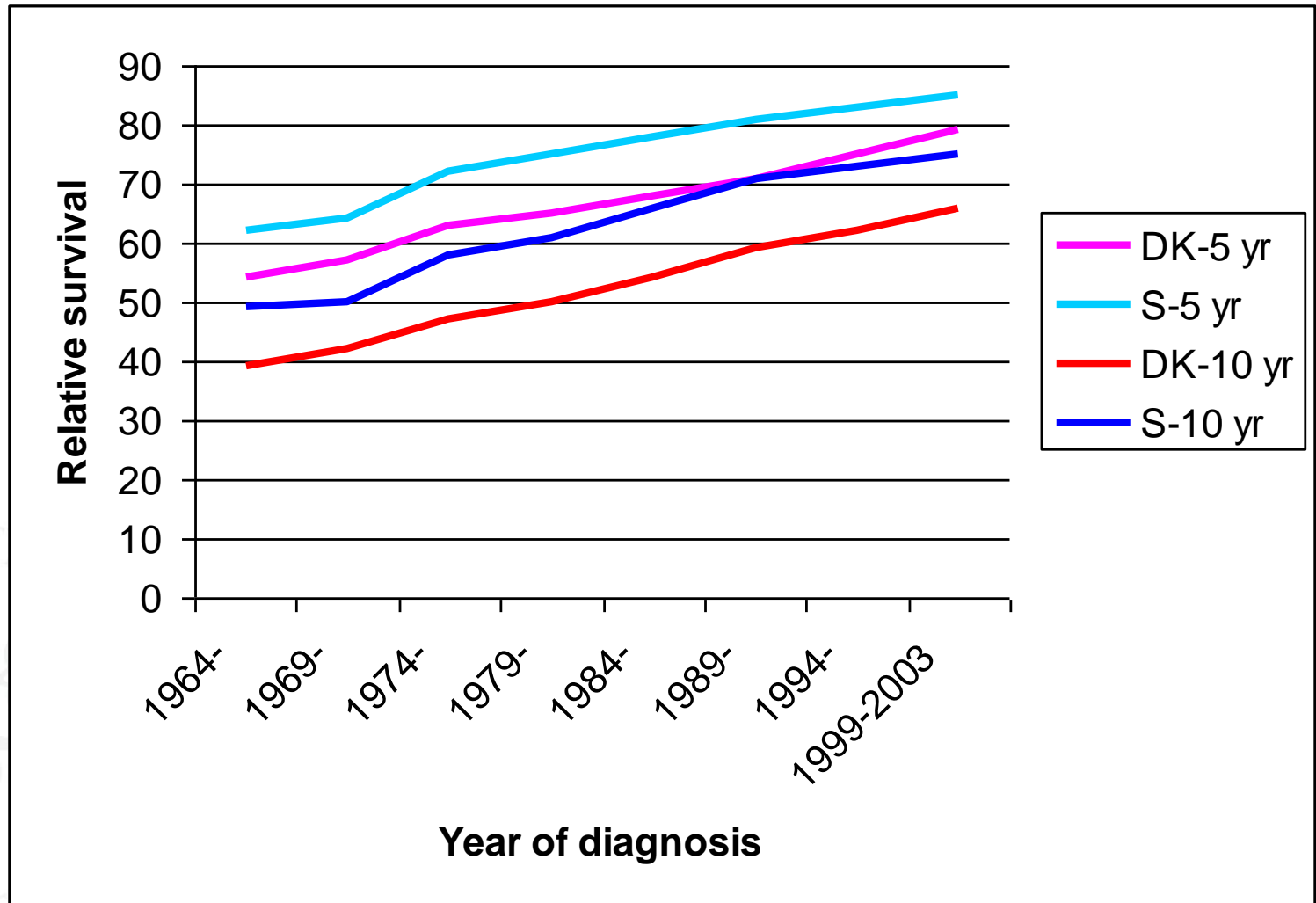
- **Surgery:** lumpectomy or mastectomy, sentinel node biopsy or axillary dissection
- **Radiotherapy:** to the breast, chest wall, and/or regional lymph nodes

■ *Systemic therapies:*

- **Chemotherapy:** anthracyclines and taxanes
- **Endocrine therapy:** tamoxifen or aromatase inhibitors
- **Anti-HER2-therapy:** trastuzumab



Survival after breast cancer



Ref.:
Tryggvadottir
et al. Acta
Oncol 2010



Late effects of local therapies

- **Pain: damage to muscle, ligaments, and nerve tissue**
 - Prevalence: 30%-50% depending on time since treatment
- **Lymphedema: damage to lymphatic vasculature**
 - Prevalence: 15%-25% depending on time since treatment
- **Arm and shoulder: restrictions of mobility**
 - Prevalence: 35% three years after treatment
- **Cardiovascular disease**
- **Second malignancies**



Treatment of local late effects

■ Pain: lack of pain intervention trials

- 47% of 5-year survivors use paracetamol, 19% NSAID**

■ Lymphedema: physiotherapeutic techniques to reduce limb volume and to maintain the health of the skin and supporting structures.

■ Arm and shoulder: early exercise and physiotherapy





Effects of radiotherapy and of differences in the extent of surgery for early breast cancer on local recurrence and 15-year survival: an overview of the randomised trials

Early Breast Cancer Trialists' Collaborative Group (EBCTCG)*

| Site of cancer or cause of death, and 3-digit ICD-9 code(s) | Events | Logrank O-E ^a | Variance of (O-E) | Ratio of rates ^b | 2p |
|--------------------------------------------------------------------------|--------|--------------------------|-------------------|-----------------------------|---------|
| Mortality before recurrence, from causes other than breast cancer | | | | | |
| By cause | | | | | |
| Circulatory disease | 1510 | 77.6 | 345.4 | 1.25 (0.06) | 0.00003 |
| Heart disease, etc ^c | 1106 | 60.7 | 252.7 | 1.27 (0.07) | 0.0001 |
| Stroke | 345 | 9.1 | 80.9 | 1.12 (0.12) | 0.3 |
| Pulmonary embolism | 59 | 7.8 | 11.8 | 1.94 (0.41) | 0.02 |
| Other specified cause | 1455 | 6.4 | 335.8 | 1.02 (0.06) | 0.7 |
| Lung cancer | 156 | 21.7 | 37.5 | 1.78 (0.22) | 0.0004 |
| Oesophagus cancer | 23 | 4.9 | 5.6 | 2.40 (0.68) | 0.04 |
| Leukaemia | 31 | 2.4 | 7.0 | 1.40 (0.45) | 0.4 |
| Soft-tissue sarcoma | 7 | 1.3 | 1.7 | 2.13 (1.14) | 0.3 |
| Respiratory disease (460-519, 786) | 241 | -1.0 | 55.5 | 0.98 (0.13) | 0.9 |
| Other known cause | 997 | -22.9 | 228.5 | 0.90 (0.06) | 0.1 |
| Unspecified cause, not breast cancer | 701 | 7.8 | 159.4 | 1.05 (0.08) | 0.5 |

Table 4: Effect of radiotherapy on incidence of second cancers before recurrence of breast cancer, and on mortality from causes other than breast cancer (23 500 women in 46 trials of adding radiotherapy, and 9300 in 17 trials of radiotherapy vs more surgery)



Late effects of systemic therapies

- **Neuropathy: chemotherapy with taxanes** (prevalence unknown)
- **Cardiotoxicity: chemotherapy with anthracyclines and anti-HER2-therapy** (prevalence about 5 % ?)
- **Impaired fertility in premenopausal women**
(9% are in childbearing age at diagnosis)
- **Premature menopause and endocrine therapy:**
 - Vasomotor symptoms
 - Sexual symptoms
 - Osteoporosis



Treatment of systemic late effects

- **Neuropathy: mechanism of origin remains unclear**
gabapentin has been recommended
- **Cardiotoxicity: like other heart failures**
- **Infertility: conventional fertility treatment with ovarian stimulation is contraindicated, cryopreservation experimental**
- **Vasomotor symptoms: estrogen contraindicated**
venlafaxine, gabapentin recommended
- **Sexual symptoms: vaginal lubricants**
- **Ostoporosis: screening and conventional treatment**
- **AND COUNSELLING !**



Psychological effects

- **Depression**
- **Fear of recurrence**
- **Sleep disturbances**
- **Cognitive problems**
- **Fatigue**





Needs for rehabilitation

- **About 1/3 of breast cancer patients needs rehabilitation after local therapies**
- **An unknown proportion needs rehabilitation after systemic therapies**
- **Most national guidelines for follow-up after breast cancer focus on risk of recurrence**
- **No guidelines have specified goals for rehabilitation during treatment or follow-up**



Needs for rehabilitation

- 1. Screening instruments should be developed to identify breast cancer patients in need of rehabilitation in a systematic way**
- 2. Specific goals for rehabilitation should be formulated and implemented into national guidelines for follow-up**
- 3. High priority should be directed towards research programs aiming at developing and testing new interventions for alleviating symptoms and side effects experienced by breast cancer survivors.**



Thank you for your attention !

